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C14 DATES FROM HARATAONGA BAY,
GREAT BARRIER ISLAND

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The following dates have been received from the Institute of Nuclear Science, NZDSIR. They are derived from samples taken by Roger Green at the time of the excavations and submitted by him in 1973 for dating. The dates below are uncorrected for secular effects and calculated using the 5568 year half life with respect to 0.95 NBS oxalic acid standard. Counting times were 1,000 minutes.

N30/4, Harataonga Eastern Midden

Charcoal from 350 mm deep in layer 1 in the S.E. corner of square B2. NZ(R4543/1) 216 \pm 55 years B.P.

(δC_{13} - 23.5%, per cent of modern 97.3 \pm 0.6%)

Charcoal from *haangi* in layer 1 in the N.W. corner of square B2. The *haangi* extends into square A.2.

NZ(R4543/2) 247 \pm 55 years B.P.

(δC_{13} - 25.6%, per cent of modern 97.0 \pm 0.6%)

N30/3, Harataonga Bay Pa

Charcoal derived from a burnt post at the base of the pit fill, square B2. NZ(R4543/3) 441 \pm 55 years B.P.

(δC_{13} - 28.0%, per cent of modern 94.7 \pm 0.6%)

The laboratory has supplied the following calibrations using the data for secular effects given in Michael and Ralph (1972). These are A.D. 1616 \pm 55, A.D. 1612 \pm 55 and A.D. 1473 \pm 55 respectively.

DISCUSSION OF THE DATES

A report on the three sites in Harataonga Bay has been published recently (Law, 1972). The site not dated here, N30/5, the Western Midden, is reasonably fixed to the 13th Century A.D. by pumice chronology and comparison of obsidian hydration rims with other sites dated by C14 (ibid; 100). A further inference on the dating of this site can now be made. The obsidian rims suggested the site was earlier

than layer 4 of the Skipper's Ridge I settlement, N40/7. Layer 4 now has a C14 date on charcoal of 807 ± 57 B.P. (NZ 1740, Davidson, 1974). There is probably some date inversion here as N30/5 overlies the 13th century Loiseles pumice and thus is unlikely to be as old as 800 years B.P., but rather probably only slightly post-dates the Loiseles pumice event.

The occupation which built layer 1, that is the bulk of the Eastern Midden, N30/4, was probably not of long duration, at least in comparison with the laboratory errors supplied with the dates. The material which supplied the samples was probably firewood from moderate diameter poles and branches such as would be used in an oven, and given the result there would seem to be no exaggeration of the ages from use of timber from old trees. Further, such material would minimise the risk of deviant ages resulting from the use of material grown solely in one half cycle of the 11-year period fluctuation of abundance of atmospheric C14. The association of the event dated (that is the short occupation) with the dates should be good. The risk of root intrusion is small.

The two dates are not significantly different and can be pooled (Leach, 1972, and elaborations by myself) to give a result of 231 ± 40 B.P. This pooled date when calibrated against the most recent MASCA dendrochronological correction curve (MASCA, 1973) the best age is A.D. 1640. At plus and minus one standard deviation the date range (rounded to maximise the range) is A.D. 1610 to 1660 and at two standard deviations the range is A.D. 1520 to 1770.

The *pa* site has a more complex history with the pit being the first use of the interior area, followed by some burning of the material used in building the pit's structure and a partial backfilling, probably deliberately. Construction of some ovens in this fill followed and then a fairly lengthy period of natural infilling with breakdown of the pit walls. The late occupation placed a diffuse shell midden rich in obsidian flakes over this. It is not clear with which occupation the defences should be associated. A date for the pit then dates the earliest use of the interior area.

The post holes in the pit suggest only a light roof structure was erected, in turn suggesting the use of small diameter (and thus recently grown) poles as posts and rafters. The association of the date with the structure should then be close. The risk of substantial root intrusion is again small. The date is significantly later than any 600 B.P. date for N30/5, and the difference between it and the pooled date for N30/4 is 246 ± 68 years, which again is statistically significant.

When calibrated by the same method as for the dates from N30/4, the date from N30/3 gives a best date of A.D. 1420 with a range at one standard deviation of A.D. 1390 to 1440 and at two standard deviations A.D. 1360 to 1510. After calibration the two events dated by C14 are still separated in time but not necessarily by as much as 246 years indicated by the uncalibrated dates.

These dates allow some important advances to be made in the interpretation of these sites. In the original report sites N30/4 and N30/3 were judged to be later than N30/5 from their increasing specialisation. This, in the case of the Eastern Midden, was the lack of evidence for any tool manufacturing, or much evidence of tool use, as compared to the Western Midden, despite a generally similar midden content. For the *pa* the evidence was a similar impoverishment of the range of evidence for any period.

This ordering was not without difficulties, and it is pleasing to have the later dating of these sites confirmed and elaborated here. The later specialisation of the sites in the bay can now be drawn out as a separate conclusion in addition to the conclusions on change through time made in the report (Law, 1972: 118-121). The 15th century A.D. dating for the storage pit is in no way surprising given the increasing evidence for early horticulture. The use of such a specialised storage component with little other contemporaneous use of the site being apparent, is useful information and supports the earlier use of Sarah's Gully Pa, N40/10, as a specialised storage site with initially little evidence for other activities. A similar use of N53-54/6 may now be dated to a similar period as this use of N30/3 (Green, pers. comm.). In contrast, the activities implied by the material from the more recent layers of Skipper's Ridge I (layers above IV) is of a wider range. Some of them are probably contemporaneous with the use of N30/3 for *kumara* storage. Similarly, there is evidence for a wider range of activities at the Station Bay sites, N38/37 and N38/30, although these sites are probably later still.

The dating of the special features of this pit, the post line along the shorter axis, the tunnel drain, probable use of *ponga* trunks in its construction, and possible use of a sand layer on the floor, provides a useful addition to the corpus of data on pit styles.

The date for the Eastern Midden falls in the period where the correction curve suggests C14 dating loses its utility in being able to separate sites in time, for properly calibrated dates must cover a wide date range. Nevertheless, the site can be dated as within the 16th to mid-18th century A.D., and as such is a valuable characterisation of a midden of the period. Clearly a range of economic activities was performed on the site showing some differences but a large measure of continuity from the early site. Also dated to this time range are the use of *Dentalium* units and the structure represented by the post hole line through the site.

The late occupation on the *pa* is still not dated relative to the Eastern Midden. It could be contemporary or earlier or later by up to two centuries, depending on which part of the possible time range N30/4 occupies. I can see few grounds for separating it in time from the Eastern Midden, a site which demands a complementary site with at least evidence of tool manufacture, such as we have here.

A NOTE

Further work has been performed on the flake assemblage from these sites by Mike Morwood and is to be published shortly in the Records of the Auckland Institute and Museum. Petrological work on the origins of the adze stone materials in the same site is also proceeding. This continuing work would suggest that the organisation of research projects need not be oriented towards eventually producing a definitive publication on all aspects of all the sites excavated, but rather if partial material is published and synthesised as it becomes available, the impetus to examine other aspects of the excavated collections is maintained.

REFERENCES

- DAVIDSON, J. M. 1974. A Radiocarbon Date from Skipper's Ridge (N40/7), Opito, Coromandel Peninsula. *NZAA Newsletter*, 17 (1): 50-52.
- LAW, R. G. 1972. Archaeology at Harataonga Bay, Great Barrier Island. *Records of the Auckland Institute and Museum*, 9: 81-123.

